

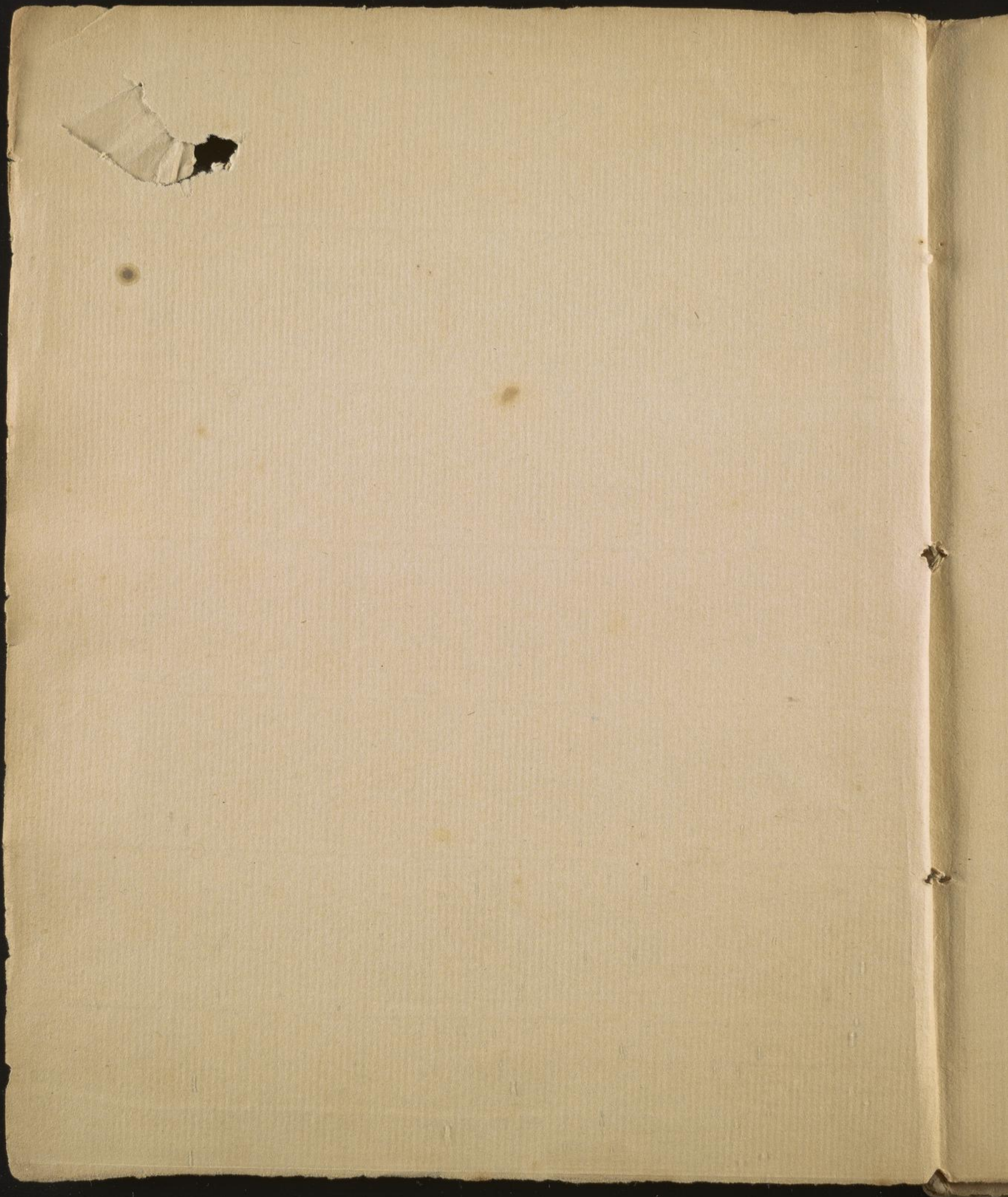
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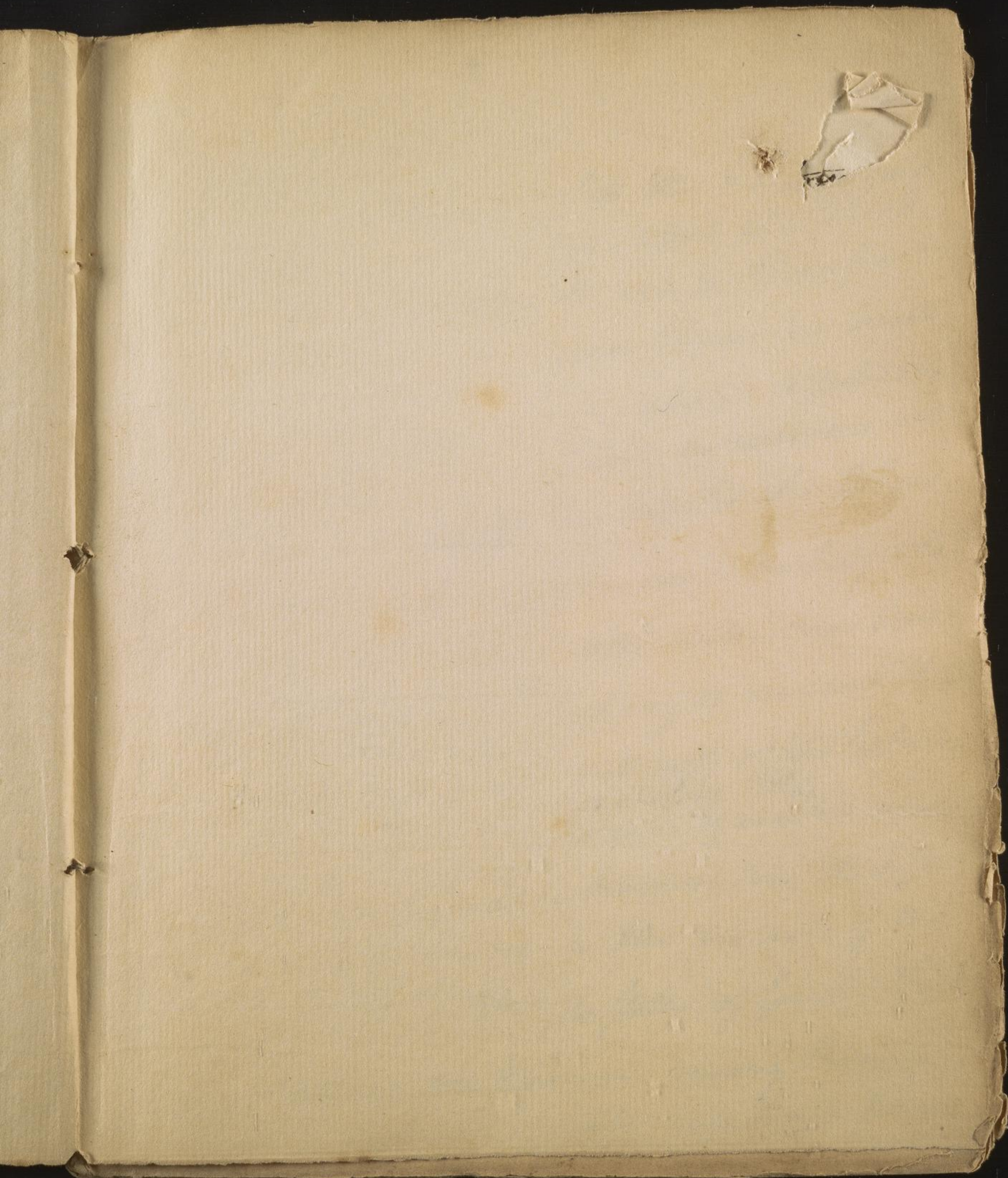
Introduction to lectures upon  
apoplexy, palsy, Coma & Epilepsy.  
Feb: 15. 1811.

Dr. Benj. Rush

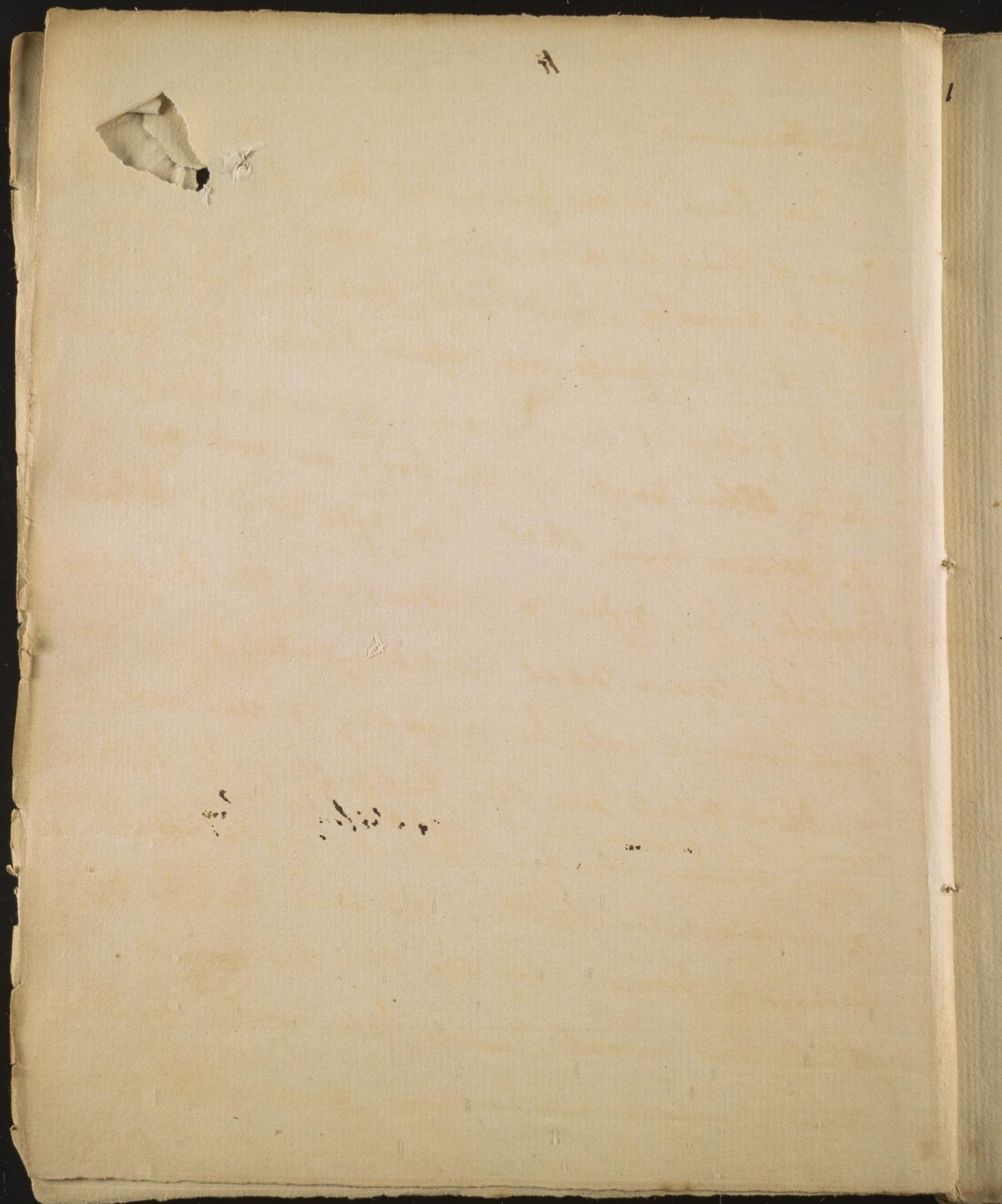














Gentlemen,

We have now finished the history and  
Cure of those diseases which affect the blood  
Vessels directly, or which make their first  
and chief impression upon them. We next  
look notice of the diseases which affect cer-  
tain other parts of the body ~~as well as~~ at  
the same time that they affect the blood.  
Vessels. In order to understand the subjects  
which comes next in order under our Consi-  
deration, it will be necessary to remark that  
the blood vessels are the outposts of the system.  
Given this <sup>preeminent</sup> ~~preeminent~~ <sup>irritability</sup>, they  
receive the first attacks of morbid im-  
pressions which they discover in the different  
forms of fever. They are the diseases of the  
first and most simple states of society. Few  
other diseases are known among savages.  
From the increase of morbid impressions from



This is the common  
 one his of a primary of 4<sup>th</sup>  
 from highest grade of  
 Agoroplexy, but I shall  
 say hereafter there are  
 cases of it in which there  
 is at an absence of pulse,  
 and of Resp<sup>n</sup> and of work  
 of 2 hours of life.

14. 20. 21. 10. — 24  
 5. 7. 8. 9. 12. 13. 17. 14. 24

1-2. 2. 6. 6. 22. 16. 25.  
 16. 25.

And it and

3. 15.

normal.

12. 14. 19. 22. 23. 27.

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11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.

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10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.



✓ The same remote Causes which induce fear  
in a labourer, or a farmer, or in a young  
man or woman induce ~~great distress~~ <sup>gout, &c.</sup>  
~~Dyspepsia,~~ Colic, head stomach - or head ache -  
or some other ~~minor~~ disease of the more  
connected with the nervous system in a wealthy  
& <sup>luxurious</sup> ~~liberal~~ persons advanced in life.  
But these nervous diseases =



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the luxuries of civilized life, diseases spread to  
 other systems, particularly to the nerves, muscles,  
 brain and mind. After a while the blood vessels lose  
 their irritability to morbid impressions, or in other  
 words acquire so much of the stricture state, that  
 diseases pass by them altogether, or nearly so, and  
 fix themselves exclusively in the nerves, muscles  
 and brain. The diseases which occupy these sys-  
 -tems usually make their appearances in the  
 the advanced, or highly civilized state of society;  
 - hence in the <sup>modern</sup> bills of mortality, ~~from~~ of London  
 fever which in the time of Tydenham destroyed  
 two thirds of all who died, are now hardly noticed  
 as the instruments of death in that city. By this  
 translocation of diseases from the blood vessels to  
 the other systems of the body, death is kept at  
 bay for a longer time than when fever was  
 the principal outlets of human life. ~~but~~ <sup>for the</sup>  
 human misery is thereby increased, and



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Diseases which ~~occupy~~ occupy the place of fevers  
~~are as~~ ~~the life suddenly~~ ~~vanishes~~ are more  
 distressing than the fevers they have banished,  
 and tho' life suddenly fatal, they are <sup>finally</sup> equally so.  
 In short they substitute Chronic diseases to  
 such as are of a short duration - painful  
 and diseases to such as often destroy sensibi-  
 -lity, and <sup>purveyors of</sup> ~~bring~~ death to <sup>the sudden</sup> ~~that which~~  
 extinction of life. It was from this view  
 of the immense difference between natural  
 diseases such as fevers, and the diseases of  
 civilized, or artificial life, that a physician  
 once said, "God <sup>made</sup> ~~that~~ acute diseases, but man  
 made all such of them as were of a Chronic  
 or artificial nature." -

Our business at present is to treat of those  
 diseases which affect the nerves & muscles in  
 common with the bloodvessels, and here I



V However strange and paradoxical this  
Assertion may sound, I believe it to be true, &  
I shall

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shall depart a little from our syllabus by treating of Apoplexy, palsy, Coma, Convulsions, or Epilepsy in the order in which I have now mentioned them. I shall begin my remarks upon all these Diseases by taking notice ~~in the~~ <sup>of the</sup> ~~fact~~ <sup>fact</sup> that they are all different grades of but ~~one disease.~~ <sup>one disease.</sup> ~~Apoplexy constitutes the highest grade~~ <sup>Apoplexy constitutes the highest grade</sup> ~~however I change this easy sound, I shall~~ <sup>however I change this easy sound, I shall</sup> ~~regard it as the lowest of I shall~~ <sup>regard it as the lowest of I shall</sup> endeavour to support ~~this position~~ <sup>it</sup> by the following facts and arguments.

1 ~~All the above diseases~~ <sup>They</sup> are all induced by a greater or less force of the same direct, indirect & Sympathetic Causes, to be mentioned hereafter.

2 They all affect the same Systems; these are the blood vessels, the brain, the mind, the muscles, and the nerves.

3 ~~They are~~ Several of them are sometimes combined with each other. Thus we <sup>see</sup> Apoplexy & Convulsions at the same time, particularly in Drunkards.

Again we see them terminate in each other.



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Thus Epilepsy succeeds Apoplexy, and Apoplexy is frequently the last and deadly purveyor of Epilepsy. Indeed Epilepsy seldom ends fatally in any other way. Further, Apoplexy often succeeds palsy and palsy Apoplexy. But this is not all, <sup>Some of them</sup> ~~they sometimes~~ alternate with each other. Thus we see Apoplexy and Epilepsy affect the same person two or three times in the course of a few years. & I infer the sameness of all the diseases here mentioned, and that they differ from each other only in force, from the same morbid appearance occurring in the brain after death from each of them. Of the truth of this assertion you will find many proofs in the Works of Morgagni, Linnæus, and other writers upon morbid Anatomy. This fact <sup>is</sup> ~~is not~~ not originally mine. It was first discovered by Dr Thomas Willis. In short, Apoplexy, palsy & Coma



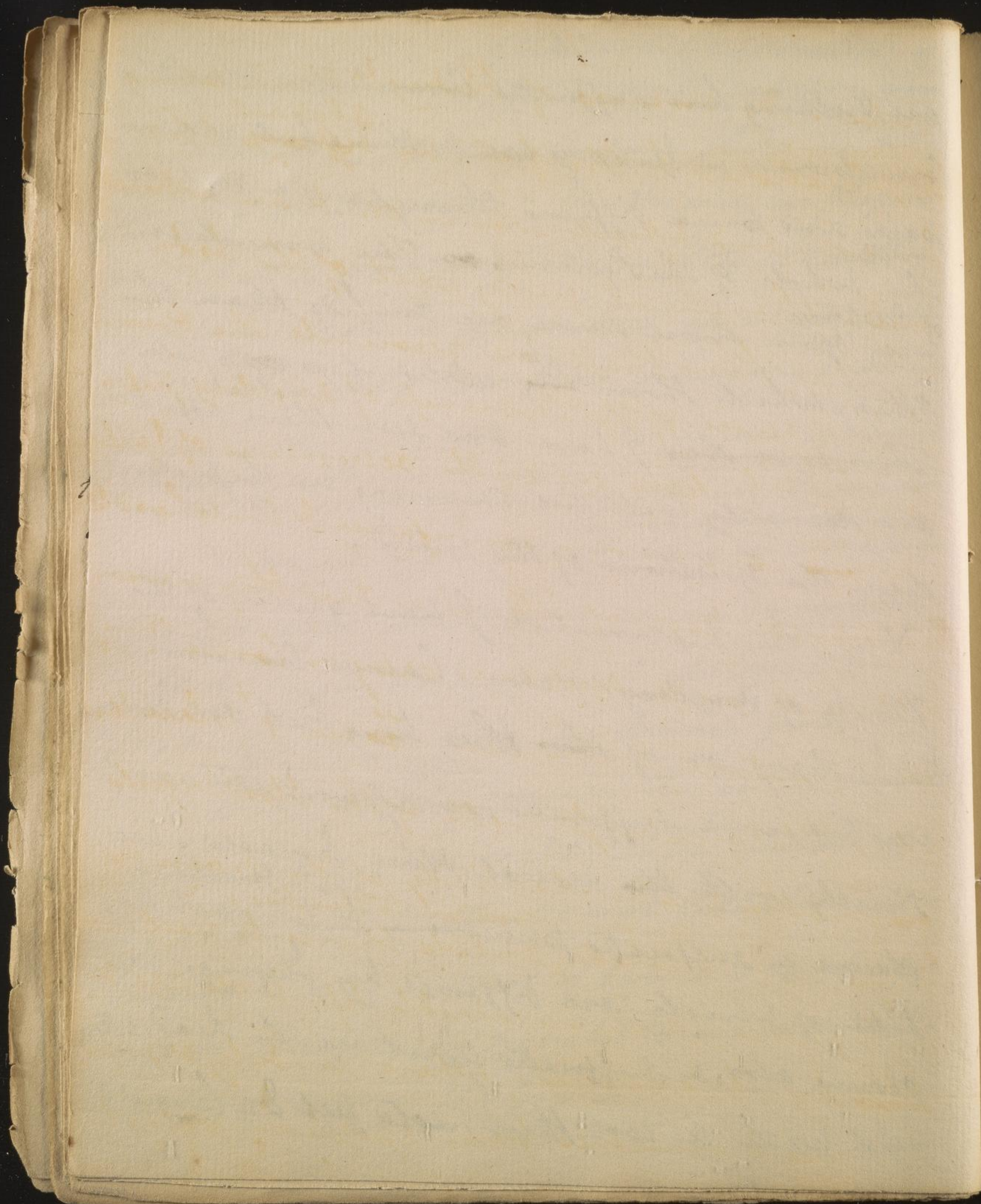
of the Cause ~~of~~ and Nature of  
✓ of the Sameness of Apoplexy & Epilepsy in  
~~this case~~. "Starting in our sleep" is a  
striking illustration. The brain in sleep is  
in what I formerly called a state of "healthy  
Apoplexy," that is somewhat oppressed with  
blood. When this Oppression comes on suddenly  
or in greater force than is common or natural,  
the brain reacts, in consequence of which  
we awake with a Starting, or in other words  
with a Convulsion. This <sup>reaction of the brain in</sup> Starting or Convulsion  
changes what would be a Coma or Apoplexy  
into a single or transient epileptic fit.  
That this is the case, is obvious from the  
the Snoring which <sup>often</sup> precedes it, or which  
occurs during the night where <sup>the</sup> reaction of  
the brain and Starting do not take place. Now  
Snoring is a Symptom of Coma & Apoplexy,  
and is uniformly ascribed to a morbid  
pressure upon the brain.



are nothing but suffocated Convulsions, and  
 Convulsions, or Epilepsy are nothing but Apoplexy,  
 palsy and Coma diffused throughout a part, or  
 the whole of the System. ~~as~~ The Convulsions  
 of Epilepsy are often more severe on one side than the  
 other, which shows ~~the~~<sup>its</sup> relationship ~~to~~<sup>to</sup> palsy.  
~~This is so that~~ I have once seen them affect  
 one side only without impairing in the smallest  
 degree the Operations of the mind.

✓ The Explanation I have given of the  
 Unity of Apoplexy, palsy, Coma, Convulsions  
 & Epilepsy, or of ~~these~~ their being but one disease  
 existing in a suffocated, or diffused state averts  
 strictly with the several other diseases. We  
 observe a suffocated pneumonia & <sup>suffocated</sup> pleuritis,  
 both of which are diffused by bleeding. We  
 observe also a suffocated gout in the head, attend-  
 -ed with a cool skin, cold feet & a languid





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pulse. By means of bleeding & stimulating  
applications to the feet, we <sup>abstract</sup> ~~diffuse~~ the  
disease, and diffuse warmth & an active  
pulse throughout every part of the body.

But how shall we reconcile the opinion  
I have given of the sameness of Apoplexy, palsy,  
Coma & Epilepsy with the occurrence of Epilep-  
sy <sup>or</sup> ~~and~~ convulsions in Infancy & Childhood  
in which stages of life, it is said they never  
alternate with Apoplexy, palsy or Coma? To  
this question I answer ~~in~~ <sup>in 1<sup>st</sup> place that</sup>  
that the greater strength of the blood vessels  
~~is~~ and the greater elasticity of the brain in  
infancy & Childhood <sup>(in proportion to this size)</sup> enable them to react with  
more force than in middle life & old age &  
~~thus~~ by that means, when unduly oppressed,  
to save themselves from Apoplexy, palsy &



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8  
Coma, by ~~creating~~ creating Convulsions &  
Epilepsy, and hence the frequency & origin  
of those diseases in ~~those~~ <sup>the</sup> early periods of life.  
But I took notice of the greater strength of the  
blood vessels in children than in grown people  
formerly, and accounted <sup>from</sup> for it for the greater  
determination of the blood to the head in the  
first years, than in any subsequent years of  
human life. But ~~cause~~ great as the relative  
strength of the blood vessels of the brain, and  
prompt as its reaction is from its greater  
relative elasticity, it is not always able to  
~~prevent~~ the prevent apoplexy, palsy & Coma by  
~~creating~~ ~~and~~ inducing convulsions, or Epi-  
-lepsy, and hence I reply to our question  
2<sup>d</sup> that Apoplexy, Coma ~~and occasionally palsy~~  
are more common in the infancy, and  
childhood, than in middle life or in old age.



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I a ~~subtle~~ <sup>the deep sleep</sup> ~~apoplexy~~ <sup>which</sup>  
This is evident 1 from ~~brain~~ <sup>now</sup> ~~the deep sleep~~ <sup>this sleep</sup> ~~which~~  
<sup>in children</sup> Epilepsy in all cases; for this sleep which  
~~uniformly follows a fit of Epilepsy~~ is no-  
thing else but ~~a febrile sleep~~ Coma, or  
a low degree of Apoplexy. and 2<sup>ly</sup> from  
Apoplexy so generally terminating the acute  
diseases of Children. This is most obvious  
in the ~~emitting~~ <sup>and in the fevers</sup> ~~fevers~~, ~~but it occurs otherwise~~  
~~from~~ <sup>from</sup> Contusions on the head, but  
it occurs likewise ~~from~~ <sup>from</sup> the small pox  
measles, Hooping Cough, <sup>taking the Colera</sup> and <sup>differs from</sup> ~~is~~ <sup>is</sup>  
Infantum. This Apoplexy ~~is~~ <sup>is</sup> ~~is~~ <sup>is</sup>  
the Apoplexy of Adults in being of a more  
chronic nature, but its courses are exactly  
the same, and the same results appear in  
the brain after death. It occurs in the close  
of the ~~above~~ <sup>above</sup> diseases now and then,



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After convulsions, but it often takes place  
without them, ~~from causes to be mentioned~~  
~~presently.~~ ~~from the exhausted state of~~

~~the strength~~ ~~the excitability of the blood vessels~~  
~~and elasticity of the brain.~~ ~~From these facts~~

~~we are~~ ~~warranted in believing that Apoplexy is~~

But 3<sup>rd</sup> ~~Disproves~~ ~~the~~ ~~to~~ the cases of Apoplexy  
in Children that have been mentioned, we

add the occasional instances of ~~Apoplexy~~ <sup>it</sup> from  
causes that act suddenly and <sup>which</sup> instantly extinguish

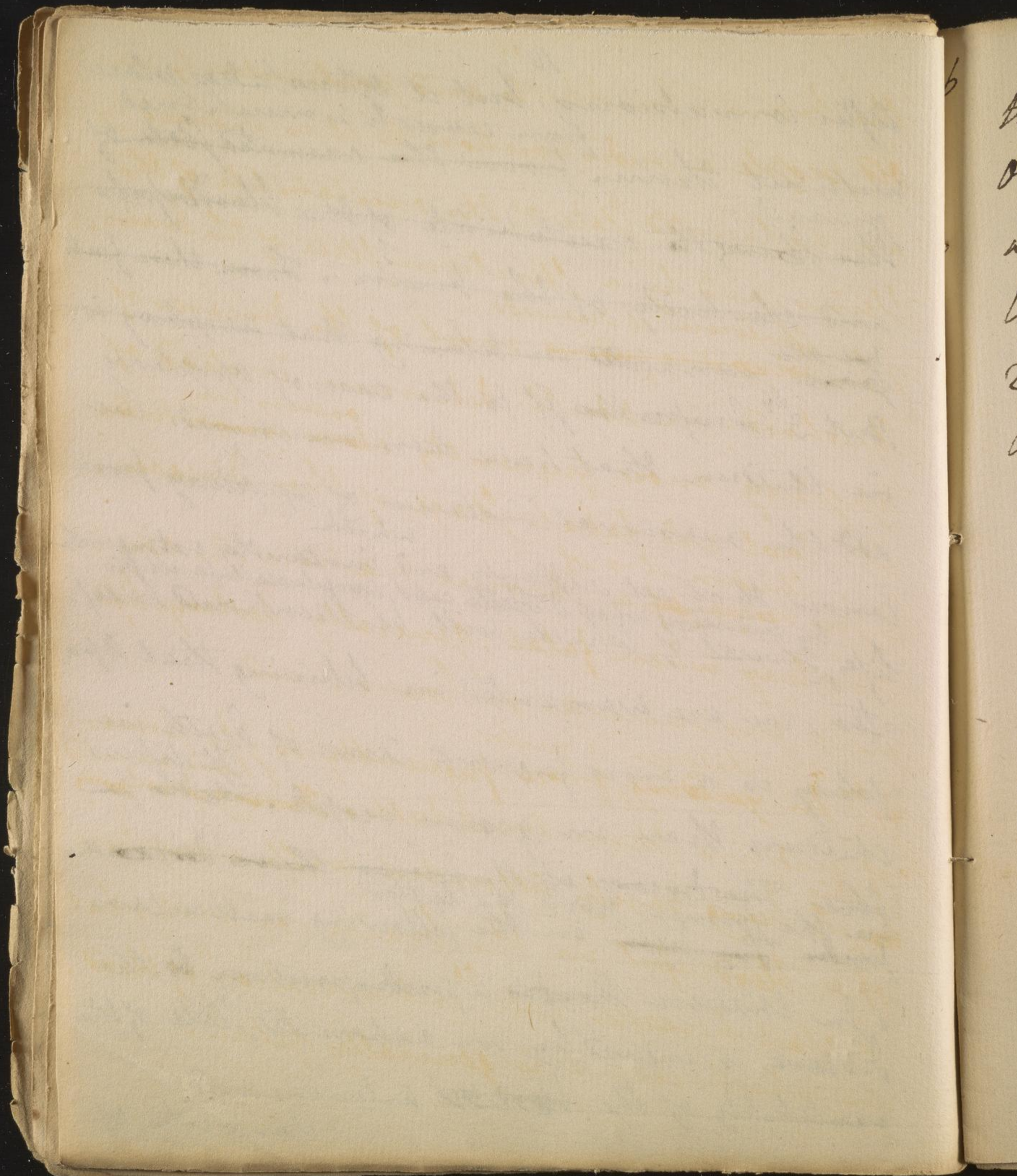
life, <sup>by inducing what Dr. Stoll calls Apoplexia infantilis</sup>  
several of which will be mentioned hereaf-  
ter, we are warranted in believing that Apo-

plexy is a more frequent cause of death in  
children than in grown people. ~~It differs~~ ~~from~~ ~~the~~

~~The disease of the former~~ ~~there is a~~  
in the former, <sup>from the latter</sup>  
~~from the latter~~ in the following particulars.

1. In children ~~there is~~ a predisposition to the  
disease is induced by an exhausted state of the  
excitability of the ~~arteries~~ <sup>arteries</sup>, and  
elasticity of







the brain. In Adults and particularly in old people a predisposition to it is induced by an exhausted state of the excitability of the Vessels, and by a stricture state of the brain.

2 In <sup>children it succeeds</sup> ~~being~~ <sup>most of the diseases of</sup> ~~succeeding~~ <sup>Childhood.</sup> In Adults, delirium instead of apoplexy, more frequently <sup>occurs in</sup> ~~constitutes~~ the last and fatal stage of their diseases.

3 In <sup>children it is of</sup> ~~being~~ <sup>a</sup> chronic nature. In Adults apoplexy when fatal, generally destroys life in a few minutes or hours. and

4 In <sup>children it yields</sup> ~~yielding~~ more frequently to the power of medicine than in Adults. <sup>I have ascribed</sup> ~~being~~ <sup>probably</sup> its being rarely attended with a rupture of a blood vessel in the brain, or with what

I shall hereafter call "intravascular" of blood. in which case it is generally fatal.



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~~But proved to remark further, that~~  
 Having I hope established the fact that  
 Convulsions are nothing but Apoplexy attended  
 with reaction, I proved to remark that Con-  
 -vulsions of all kinds are transient, that is  
 they ~~are~~ occur once or twice, and never afterwards,  
 or they are periodical. In this respect you  
 perceive their Affinity to Fevers, which occur in  
 in a single paroxysm, or in two or more pa-  
 -roxysms, and never occur afterwards, or which  
 occur periodically in the forms of quotidian,  
 tertian, or quartan ~~fevers~~ which continue  
 when left to themselves thro' a whole season,  
 or for several years, or during a whole life.  
 Convulsions from teething, or from the  
 small pox may be considered as a simple  
 attack of an ephemeral fever, or as a



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fruit of one paroxysm, while Epilepsy may  
 be considered as an obstinate intermittent  
 deeply seated in the constitution, & liable to  
 be excited by as many causes as those  
 which excite paroxysms & relapses of inter-  
 mitting fevers. Nor does the resemblance of  
 the two diseases stop here. An intermittent  
 was formerly as much an incurable disease  
 as the Epilepsy, and would probably have re-  
 mained so till this day, had it not been  
 for the discovery of the Peruvian Bark. It is  
 true it destroys life somewhat sooner than  
 the Epilepsy from its disorganizing effects  
 upon the liver and other viscera. The brain  
 in this case yields more slowly to decay &  
 disorganization than the viscera of the  
 Abdomen from repeated attacks, ~~of~~  
 and the



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the long duration of Epilepsy. The reason of  
this must be obvious to you. The viscera  
possess but a feeble power of reaction compared  
with the brain, & hence the Epilepsy often  
continues for 20, 30, & even 40 years without  
inducing any change in the organization  
of the brain, or even in the functions, or  
operations of the mind. That the reaction  
of the brain saves it from destruction, I  
infer from the effects of Apoplexy upon  
it in which no reaction takes place. A  
single fit of often leaves ~~behind~~ behind it dis-  
-ease of the eyes, or ears, or obstinate head-  
-ache, or a defect of memory, and a third fit  
often destroys life, by the complete disorgani-  
-zation of the brain.

~~It has~~ I have what has been <sup>said of</sup>  
~~the~~ the affinity of Apoplexy & Epilepsy.



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we may explain several facts that occur in those diseases.

It has often been <sup>that</sup> observed <sup>that</sup> convulsions  
~~are~~ in the beginning of a fever, seldom attended  
 with any danger. The reason of this is  
 obvious. The brain in the beginning of a  
 fever is too strong to be disorganized by  
 them. It has been observed further, that  
 convulsions in the close of fevers, and of  
 many other diseases are generally fatal. The  
 reason of this is likewise obvious. The excita-  
 -bility of the blood vessels and the elasticity of the  
 brain are <sup>so completely</sup> exhausted ~~so~~ as to prevent their  
~~reacting upon the~~ <sup>and reacting</sup> ~~in disease and hence~~  
 recovering their tone, and hence they suc-  
~~cessfully sink under the~~ so as to produce  
 by reacting, an equilibrium in the  
 system, &c



✓ are epileptici - in their close - they  
are apoplectici. -



hence they succumb, or sink <sup>by</sup> ~~into~~ a fatal  
 apoplexy, from their being too weak to save  
 themselves by a single fit, or by successive  
 fits of ~~epi~~ convulsions or in other words of  
 epilepsy. <sup>In a word,</sup> The convulsions in the beginning of V

2 It is a remark as ancient as Hippocrates,  
 that a fever succeeding Apoplexy is favourable.  
 - Why is it so? - I answer because it  
 shows, <sup>the brain to be so greatly unimpaired as to be</sup> ~~reaction in the brain~~ <sup>the brain</sup> ~~the medium~~  
 of the blood vessels able to react thro' the me-  
 -dium of the blood vessels of the whole system.  
 - It is equally a sign that the brain has  
 escaped disorganization when it reacts by  
 means of convulsions or Epilepsy.

3 It has been remarked that Epilepsy generally  
 terminates in death by a fit of Apoplexy, <sup>or</sup> ~~and~~  
 that it goes off gradually between the 50<sup>th</sup>  
 and 60<sup>th</sup> years of life. The reason of this



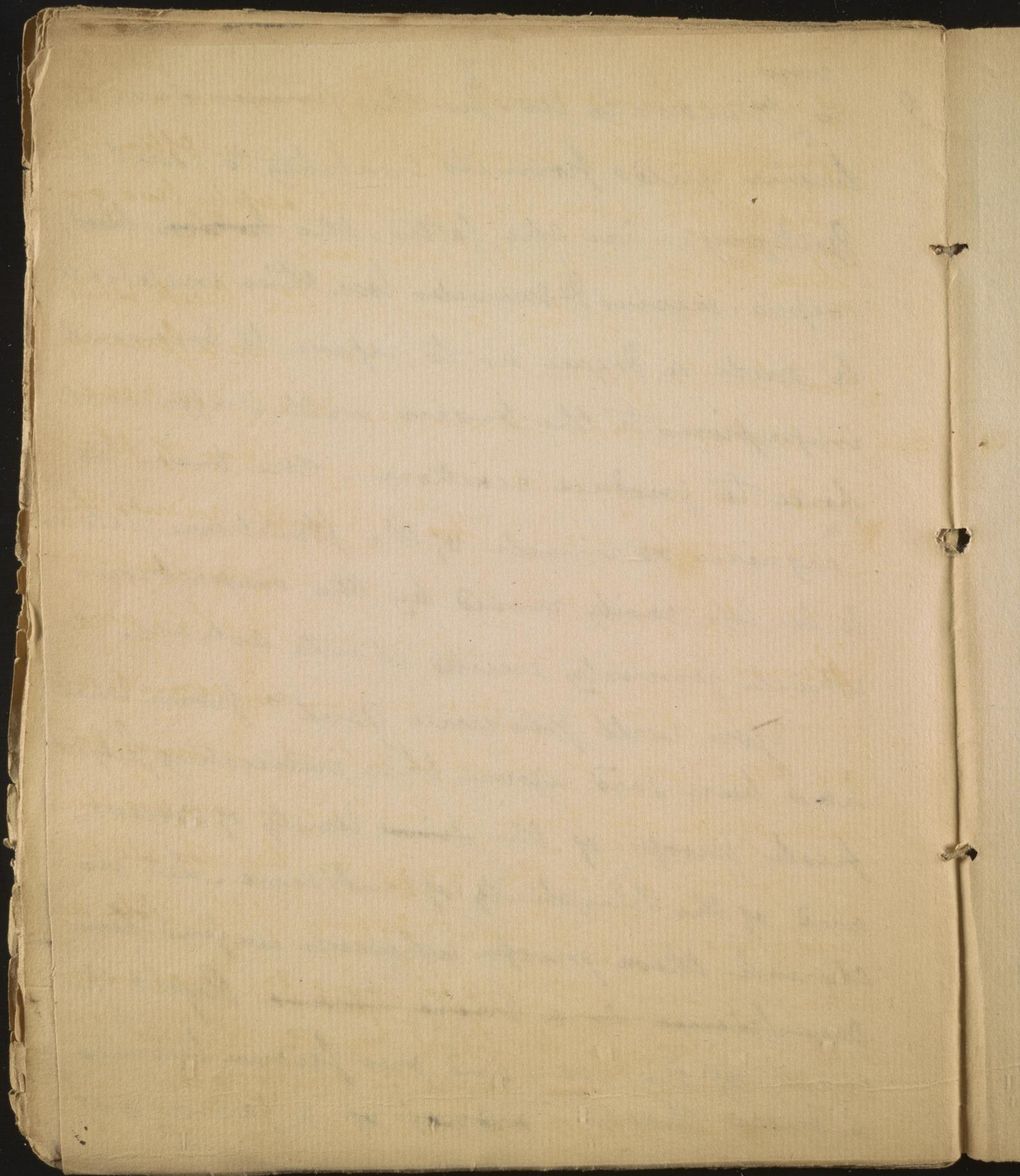




9 <sup>now</sup> is <sup>17</sup> obvious to us. In the former case the  
brain yields from its inability to react in  
Epilepsy; - in the latter, the ~~brain~~, blood-  
vessels, nerves & muscles lose their irritability  
to such a degree as to refuse to transmit  
impressions to the brain with sufficient  
force to produce reaction. The brain too  
requires so much of the stimulus states as  
to be less easily moved by the impressions  
which formerly excited it into action.

You will perceive Gent<sup>l</sup> from what  
has been said upon this interesting subject,  
fresh proofs of the ~~simplicity~~ unity of Disease,  
and of the simplicity of medicine. Let us  
cherish these proofs wherever we find them.  
~~Our Science is a mere Chaos~~ Reject the  
unity of Disease, and our science becomes  
a mere Chaos, - ~~a mass of~~ a jarrage of







of unmeaning words, and a compound of <sup>fully &</sup> ignorance. As error & truth are often illustrated by similes, I shall apply two or three to the subject before us.

The School boy considers the Creek which washes his father's plantation, as a stream of water made wholly for that purpose, and unconnected with any other of the waters of the globe. <sup>A</sup> peasant views the river ebbing & flowing twice in the twenty four hours in the same contracted light, and even the fisherman frequently admits of no other Ocean than that which receives the waters of the bay from which he derives his clams and oysters; while the navigator beholds all the creeks and rivers & bays & oceans of the globe as intimately connected, and forming one great integral mass of water. In the School boy, the peasant & the fisherman <sup>we</sup> behold the nosologists! — In the navigator, we behold the Unitarian in medicine.



